REMARKS

Claims 1-9 are all the claims pending in the application. Claim 9 has been added to further define the invention. Reconsideration and allowance of all the claims are respectfully requested in view of the following remarks.

Claim Rejections - 35 U.S.C. § 112

The Examiner rejected claim 8 under §112, 1st paragraph, as failing to comply with the written description requirement. Specifically, the Examiner asserted that claim 8 contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention. Further, the Examiner asserts that it is not understood how a heat resisting resin is defined, nor how the retainer does not include a heat resisting resin. Applicants have amended in part, and respectfully traverse this rejection in part, as follows.

First, Applicants have amended claim 8 to make more clear that the resin composition, of which the retainer is made, does not include a heat-resisting resin as a component thereof. Instead, the resin composition is made of a base resin (such as polyamide 46, polyphenylene sulfide or polyether ether ketone, and the like) and a reinforcing material (such as glass fibers, carbon fibers, and the like). However, the base resin by itself is not a "heat-resisting" resin.

Second, one of ordinary skill in the art would readily understand how the retainer of the presently claimed invention is "heat resistant" without including a "heat-resisting resin". That is, one of ordinary skill in the art would understand that "heat-resisting resin" applies to a certain group of resins which, by themselves, exhibit a high heat resistance. For example, as noted in US Patent 6,315,456 to Tanimoto (which was cited by the Examiner), polybenzimidazole (PBI) is an example of a heat-resisting resin.[1] Further, as noted in the present specification, so-called super engineering plastic resins of polyether sulfone (PES), polyetherimide (PEI), polyamidimide (PAI), and polyimide (PI), exhibit excellent heat resistance. However, these

[1] Tanimoto at col. 2, lines 4-5.

materials leave something to be desired in terms of flexibility, which is necessary for a retainer. Accordingly, although the retainer of the presently claimed invention is itself "heat-resistant", the resin composition from which it is made does not include a "heat-resisting" resin as a component thereof. Instead, the retainer is made heat-resistant and flexible by choice of the components of the resin composition which, when acting together, become heat-resistant to the degree desired.

As set forth in claim 1, for example, two properties of the resin composition that make a heat-resistant, yet flexible, retainer are that it have a flexural modulus of at least 3,500 MPa at 180°C and a heat-resistant temperature of at least 150°C. As noted throughout the specification, including Examples 1-25 and Comparative Examples 1-14, there may be various manners of achieving the claimed properties, without using a "heat-resisting resin", *per se*, as a component of the resin composition from which the retainer is made.

For at least any of the above reasons, claim 8 is fully described in the present specification, and is definite as written. Accordingly, Applicants respectfully request that the Examiner withdraw this rejection.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claims 1-7 under §103(a) as being unpatentable over US Patent 5,807,920 to Ueno et al. (hereinafter Ueno). Applicants respectfully traverse this rejection because Ueno fails to establish *prima facie* obviousness.

First, Ueno fails to teach or suggest all the elements as set forth in claim 1.

Claim 1 sets forth, *inter alia*, a rolling bearing comprising a retainer rotatably holding rolling elements wherein the retainer is made of a resin composition having a flexural modulus of at least 3,500 MPa at 180°C and a heat-resistant temperature of at least 150°C.

By structuring the retainer as set forth in claim 1, the retainer can be used without any deformation at high temperatures and fairly assembled to bearing and, thus, can be used under severe working conditions such as high temperature, high rotary speed, and high load over an

extended period of time.[2] Further, because the resin composition has a flexural modulus of at least 3,500 MPa at 180°C and a heat resistant-temperature of at least 150°C, it thus exhibits an excellent heat resistance and oil resistance as well as good mechanical properties. This material has a proper flexibility and, hence, a snap-fit property required for a retainer. The resulting retainer can be fairly assembled into a bearing.[3]

In contrast to that set forth in claim 1, Ueno fails to teach or suggest that a retainer is made of a resin composition having a flexural modulus of at least 3,500 MPa at 180°C and a heat-resistant temperature of at least 150°C. In fact, the Examiner notes that Ueno is silent as to such properties of his resin.[4]

The Examiner asserts that it would have been obvious to make Ueno's retainer out of a resin having the claimed properties because it would have been a matter of obvious design choice to select a known material on the basis of its suitability for the intended use.[5] But Ueno's intended use is not the same as that of the presently claimed invention. Ueno's intended use is a bearing that can be used in a high temperature oil as exists in a transmission.[6] Accordingly, an important—indeed, necessary—component of Ueno's retainer is the hydrocarbon polymer. After all, it is Ueno's hydrocarbon polymer that contributes to the dramatic improvement of oil resistance of the retainer.[7] On the other hand, the intended use of the presently claimed invention is a retainer that operates at a high rotary speed of around 20,000 rpm, and in a high-temperature

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[2] Specification at page 4, lines 6-14, for example.

[3] Specification at page 5, lines 7-19, for example.

[4] Office Action at page 3, item 4, paragraph 2.

[5] Office Action at page 3, item 4, 3rd paragraph, lines 1-4.

[6] Ueno at the abstract, and col. 1, lines 40-51, for example.

[7] Ueno at col. 2, lines 8-27.

of about 150°C to about 200°C, but is not immersed in oil.[8] Accordingly, the resins suitable for Ueno, and those suitable for the presently claimed invention, would not be the same. Therefore, one of ordinary skill in the art—looking at the teachings of the reference as a whole—would not have found the retainer as set forth in Applicants' claim 1.

Further, the Examiner asserts that it would be inherent for the claimed materials having the specified glass or carbon composition to have the properties as described in claim 1.[9] Applicants respectfully disagree. Ueno teaches a composition of an aliphatic polyamide resin, a hydrocarbon polymer, and possibly reinforcing fibers. Thus, Ueno teaches the use of three components, whereas examples of the present invention include only two of these components, i.e., a thermoplastic base resin and reinforcing material. That is, examples of the presently claimed invention do not include the "hydrocarbon polymer" as a necessary component, as is set forth in Ueno. And a hydrocarbon polymer will greatly affect the properties of the composition in which it is included, as evidenced by Ueno's comparative examples 1-3. Specifically, Ueno's comparative examples 1-3 did not include the hydrocarbon polymer, and were judged as being unacceptable due to a "great reduction in break strength".[10] Further, Ueno teaches that the hydrocarbon polymer exhibits a "masking effect of preventing permeation of oil ... [whereby] it follows that the interior of the retainer receives only heat from the high-temperature oil."[11] Accordingly, because Ueno teaches the use of different components in his resin composition, that composition would not inherently include the same properties as the presently claimed composition. That is, Ueno's retainer does not necessarily have—as is required to support the assertion of inherency—the properties as set forth in claim 1.

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[8] Specification at: page 2, line 24 - page 3, line 13; page 4, lines 6-14; page 7, line 22 - page 8, line 1; paragraph bridging pages 17 and 18; page 20, 2nd paragraph; page 22, 1st paragraph; paragraph bridging pages 22 and 23; page 23, lines 5-10; page 26, and lines 14-20.

[9] Office Action at page 3, item 4, 3rd paragraph, lines 4-6.

[10] Ueno at col. 8, lines 23-31. See also, Ueno at col. 7, line 33 - col. 9, line 11.

[11] Ueno at col. 2, lines 8-27.

For at least any of the above reasons claim 1 is not rendered obvious by Ueno. Likewise, dependent claims 2-7 are not rendered obvious by this reference. However, Applicants respectfully traverse this rejection as it applies to claims 5-7 for the following additional reasons.

Claims 5 and 6 set forth that the resin composition is a polyether ether ketone (PEEK) resin containing fiber material. In contrast to that set forth in claims 5 and 6, Ueno teaches away from the use of PEEK. Specifically, Ueno teaches that super engineering plastics, such as PEEK are usable at a high temperature, but "are inferior in flexibility and expensive in comparison with the aliphatic polyamide resin ..."[12] Ueno then contrasts the materials of his invention—aliphatic polyamide resin and hydrocarbon polymer—which are "inexpensive and easily available in comparison with the super engineering plastic" and are able to attain "characteristics and economy as a retainer ... superior to those made of super engineering plastic."[13] Accordingly, one of ordinary skill in the art—following the teachings of Ueno as a whole—would not have found it obvious to use PEEK, as set forth in claims 5 and 6.

Claim 7 sets forth that the retainer is prepared in such an arrangement that the entire inner circumference thereof acts as a mold gate. As set forth in the specification, for example in the paragraph bridging pages 11 and 12, a retainer can easily undergo damage at welded portions at which molten resin parts have associated with each other during injection molding. Therefore, by using disc gate (or so-called film gate)—wherein the entire inner circumference of the retainer acts as a mold gate—as the gate for injection molding instead of the ordinary tunnel gate, a retainer free of a welded portion advantageously can be prepared. In contrast to that set forth in claim 7, Ueno teaches the use of a "side face 1-point gate", i.e., a tunnel gate.[14] Accordingly, Ueno fails to teach or suggest a retainer that is prepared in such an arrangement that the entire inner circumference thereof acts as a mold gate, as set forth in claim 7.

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[12] Ueno at col. 1, lines 31-38.

[13] Ueno at col. 2, lines 28-39.

[14] Ueno at col. 7, lines 12-15.

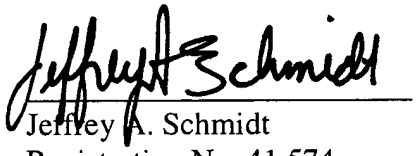
Conclusion

Claim 9 has been added to further define the invention. Claim 9 depends from claim 1 and, therefore, should be allowable at least by virtue of its dependency.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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